# 2.0 METHODOLOGY

This section generally describes the methods employed in amassing and evaluating the information required for this project. The methods for evaluation of the information and determination of the segment boundaries are described in more detail in Section 4 of this report.

## 2.1 Data Collection

Existing segmentation schemes are largely the product of various governmental agencies, both Federal and State. All or most of this information is public and fairly easily accessible, usually through agency publications. A computerized library search assisted in identifying pertinent documents for determination of both existing segmentation and for the evaluation of natural and anthropogenic influences.

Boundaries and segmentation types sought included defined management areas, territorial jurisdictions, monitoring areas, navigational areas, and segmentation employed for hydraulic, water quality, or biological studies or modeling. As expected, the information gathered from the various governmental agencies was the most productive of these data.

The bulk of the information was obtained by consulting documents, maps, photographs, and records available in the Texas Water Commission Library and Central Records, the University of Texas Library System, the JN corporate library, and personal collections of many of the JN personnel.

In addition to information collected directly, JN instituted a mailout to solicit information and comments relevant to this study. The purpose was to solicit information and comments from entities that may not have direct jurisdictional or segmentational concerns with the Galveston Bay system, but which may have had information or comments valuable to this study. Entities contacted or from which information was obtained either directly or from published information are listed as follows:

## Federal Agencies

U. S. Environmental Protection Agency
U. S. Department of the Interior - Fish and Wildlife
U. S. Army Corps of Engineers
National Oceanic and Atmospheric Administration
U. S. Coast Guard
U. S. Department of Transportation

## State Agencies

Texas Water Commission
Texas Water Development Board
Texas Parks and Wildlife Department
Texas Department of Health
Texas Railroad Commission
Texas General Land Office
State Universities

## Local Agencies and Groups

Cities and Towns bordering Galveston Bay
Counties bordering Galveston Bay
Utility Districts bordering Galveston Bay
Local Colleges
Industries bordering Galveston Bay
Private Universities and Colleges
Citizens Groups bordering Galveston Bay

The mailout was originally not to have included those agencies and entities whose files and publications were searched or obtained directly; however, they were included later in the project to solicit ideas, information sources that may have been missed, and comments on the project. A listing of the mailout addressees is included in the Appendix of this report.

## 2.2 Data Management

An enormous amount of information was amassed and reviewed as input to this project. Preference was given to geobased information, spatially-oriented information that was either already mapped or could be easily mapped, since the function of this project is to develop geobased segmentation from geobased data. Three types of data management were employed. Pertinent characteristic descriptions and the results of information reviewed were cataloged into a reference database. All mailout correspondence was filed into a sequential correspondence file. A GIS system was developed for the Galveston Bay system to store, manage, index, and present the massive amount of geobased information utilized during the course of this project.

### 2.2.1 Reference Database

Information utilized during the project was cataloged into a reference database that provided an extended bibliography. In addition to the reference to the source of the information, descriptor fields were included to characterize the type of information and the utility to this project. In addition to providing a bibliography for the report, the database allowed searching for information types during the GIS input and evaluation phases of the project. The database was constructed in Dbase IV and utilized with that software product. The database is available in both Dbase IV and ASCII formats and constitutes a project deliverable.

### 2.2.2 Sequential Correspondence File

The sequential correspondence file contains a copy of all outgoing correspondence from the mailout and any responses received. The sequential correspondence file is a set of conventional file folders, one for each entity contacted. The sequential correspondence file also constitutes a project deliverable.

### 2.2.3 GIS System

The GIS system was developed to store, manage, index, retrieve, and present the massive amount of geobased and graphical data accumulated for the project. Originally, these data were managed with an AutoCad-based system. As the amount of data grew, the file size became unmanageable on this system. Since the information was to be delivered in a GIS compatible form, the decision was made to transfer the information to an ARC/INFO-based GIS system.

The initial step in creating the GIS system was the construction of the base map coverage. USGS digitized map information was obtained in digitized line graph (DLG) format for the 38 7.5-minute quad maps required to encompass the area. These files were input, converted, and organized into separate coverage or layers. The features represented by the various layers and coverage were identified and name attributes were attached.

As the information for the project was received, it was assessed for potential utility to the project and for candidate entry into the GIS system. Some ARC/INFO files were obtained directly; however, the bulk of the geobased information required digitization. Maps and other pertinent geobased information was digitized for input and identified with a large high resolution digitizing board.

After the information was input to the GIS system, it could be visually reviewed for coincident spatial coverage and was of considerable utility to the synthesis and assessment of the information for the decision matrix described subsequently. In addition, the GIS system was employed to construct many of the maps that serve as figures in this report.